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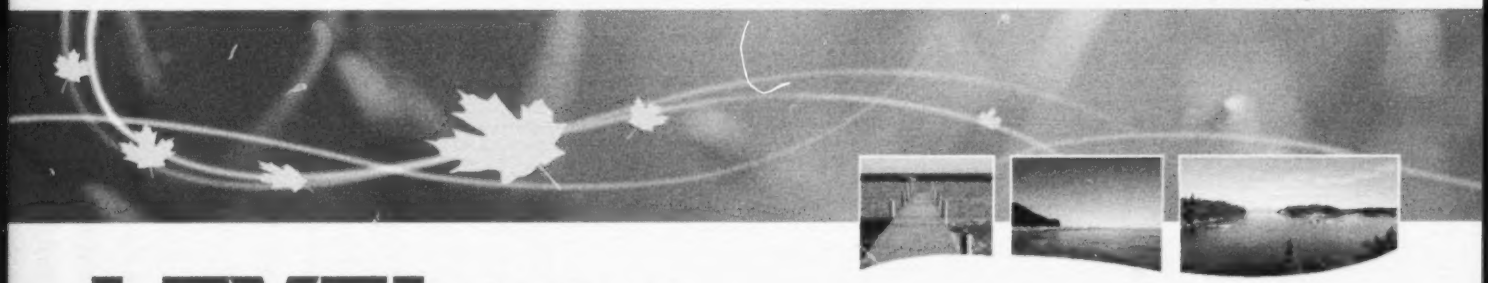

LEVELnews

Great Lakes — St. Lawrence River Water Levels

Wet 2017 leaves all lakes higher to start 2018

Generally wet conditions across the Great Lakes basin in 2017 left all of the lakes at higher levels at the beginning of January 2018 than seen a year ago. However the month of December saw the levels of Lakes Ontario, Erie and Michigan–Huron all fall more than average for this time of year. Lake Superior's level also fell but it had sufficiently wet water supply to offset losses due to evaporation and outflow so its decrease in level was less than the December average. All of the levels of the Great Lakes remained well above average for this time of year. The levels in the lower St. Lawrence River remained near average throughout December due to drier conditions than seen at times earlier in the year.

December monthly lake levels

All of the lakes had monthly mean levels above average in December. The December monthly mean water level of Lake Superior was 32 cm above its period-of-record (1918–2016) average and 18 cm higher than December 2016. Lake Superior's monthly December level was the second highest December mean level on record and 9 cm below the record high set in 1985. Lake Michigan–Huron's mean level in December was 46 cm above average, 28 cm higher than last December's level and the

Great Lakes Water Level Information

Lake	December 2017 Monthly Mean Level		Beginning-of-January 2018 Level	
	Compared to Monthly Average (1918–2016)	Compared to One Year Ago	Compared to Beginning-of-Month Average (1918–2016)	Compared to One Year Ago
Superior	32 cm above	18 cm above	34 cm above	20 cm above
Michigan–Huron	46 cm above	28 cm above	43 cm above	25 cm above
St. Clair	45 cm above	24 cm above	49 cm above	27 cm above
Erie	41 cm above	23 cm above	38 cm above	20 cm above
Ontario	25 cm above	31 cm above	22 cm above	27 cm above

Canada

highest since 1986. Lake Erie's mean monthly level was 41 cm above average, 23 cm above its level the previous December and was last seen this high in 2011. Lake Ontario's mean monthly December level was 25 cm above average, 31 cm higher than the level last year but was higher at this time of year as recent as 2006.

Lake level changes

All lake levels declined over the month of December in part due to a number of factors that varied between each lake that included increased evaporation that is common for all lakes at this time of year, the beginning of snow and ice formation, high outflows and drier conditions seen in some of the lakes. Lake Superior received well above average water supplies in December which more than offset the above average outflow resulting in its level declining by only 2 cm when its average (1918–2016) decline is 8 cm. Lake Michigan–Huron dropped by 9 cm over December due to dry conditions when on average it declines 5 cm. Lake Erie fell 9 cm over December when on average it rises 2 cm mainly due to a combination of average supply conditions with high outflow. Lake Ontario received above average water supplies but these were offset by above-average outflows resulting in its levels falling 8 cm over December when on average it rises 1 cm over the month.

Beginning-of-January lake levels

All the Great Lakes began 2018 with levels that were well above average. Lake Superior's beginning-of-January level was 34 cm above average (1918–2016), 20 cm above the level at this time last year and 6 cm below the record high for this time of year set in 1986. Lake Michigan–Huron's beginning-of-January level was 43 cm above average, 25 cm higher than last year and the highest it has been since 1998. Lake Erie was 38 cm above average at the beginning of January, 20 cm above this time last year but has been this high as recently as 2012. Lake Ontario's level at the start of January was 22 cm above average, 27 cm above this time last year and has been this high as recently as 2007. At the beginning of January, all of the lakes were at least 50 cm above their chart datum level.

Chart datum on the Great Lakes

At times you may hear the Great Lakes levels referenced to chart datum. A chart datum is a horizontal plane used to refer current lake levels to in order to provide more information on the depth of water for safe boat navigation on the lakes. The chart datum used on navigation charts for the Great Lakes is a low-water level set from recorded lake levels for each lake so that lake levels are expected to be above the chart datum 95% of the time. Nautical charts reference the bottom of the lake to the chart datum, so for instance, if a location on the nautical chart indicates that the bottom of the lake is 1 m below chart datum, then using beginning of January water levels, you can tell that the depth of water will be at least 1.50 m at that location. For more information on chart datum you can refer to the

December Precipitation over the Great Lakes*

Great Lakes Basin	**71%**	**Lake Erie (including Lake St. Clair)**	**49%**
Lake Superior	**107%**		
Lake Michigan–Huron	**62%**	**Lake Ontario**	**62%**

December Outflows from the Great Lakes*

Lake Superior	**123%**	**Lake Erie**	**119%**
Lake Michigan–Huron	**115%**	**Lake Ontario**	**122%**

***As a percentage of the long-term December average.**
NOTE: These figures are preliminary.

Fisheries and Oceans Canada web page on vertical datums at: http://www.tides.gc.ca/eng/info/verticaldatums and the chart datum for each of the Great Lakes is given in Canadian Hydrographic Service's monthly water levels bulletin at: http://tides-marees.gc.ca/C&A/bulletin-eng.html.

Water levels forecast

Relative to their beginning-of-January levels and assuming average water supply conditions all the Great Lake levels are expected to decline through January. For a graphical representation of recent and forecasted water levels on the Great Lakes, refer to the Canadian Hydrographic Service's monthly water levels bulletin at: http://tides-marees.gc.ca/C&A/bulletin-eng.html.

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